UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/659,533	09/10/2003	Rainer R. Hadwiger	A0312.70496US00	4806

7590 06/29/2004

Randy J. Pritzker
Wolf, Greenfield & Sacks, P.C.
600 Atlantic Avenue
Boston, MA 02210

EXAMINER	
KING, JUSTIN	

ART UNIT	PAPER NUMBER
2111	

DATE MAILED: 06/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/659,533	HADWIGER ET AL.	
	Examiner	Art Unit	
	Justin I. King	2111	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *25-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *25-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *1/26/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: "A Shifted Arbitration Method with Round-Robin Algorithm For a Communication Interrupt".

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 25-30 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for distributing the resources to the highest priority request, does not reasonably provide enablement for defining the request slots and the table of the slot owners. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make or use the invention commensurate in scope with these claims. The specification merely states the slot owner, request slot, and the table. The Specification does not provide sufficient information in defining these components, and does not enable one to implement the invention as invented by the Inventors.

4. Claims 25-30 are rejected under 35 U.S.C. 112, first paragraph, because the best mode contemplated by the inventor has not been disclosed. Evidence of concealment of the best mode

is based upon the lack of sufficient information for the essential elements of request slot, slot owners, and the table.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gehman (U.S. Patent No. 6,073,132) in view of Munguia et al. (U.S. Patent No. 5,845,096).

Referring to claim 25: Gehman discloses priority scheme (figure 2), which it grants the bus access request of a requestor asserting a high priority interrupt (steps 204, 206, and 208). Gehman further discloses a shifting to a round robin algorithm if no requestor is asserting the high priority interrupt (figure 2, steps 216, 218, 220, and 222). Gehman does not explicitly disclose the condition of ownership of the current request slot.

Munguia discloses adaptive arbitration mechanism that "parks" the bus on the peripheral component, which has requested access most often (abstract). Munguia's parking practice is the ownership of the request slot. Munguia discloses that by parking the bus at the most frequently access requestor; it reduces the latency caused by the access granting process (column 5, lines 12-15). Thus, Munguia discloses granting access request of a requestor owning the current request slot if no requestor is asserting a high priority interrupt.

Hence, it would have been obvious to one having ordinary skill in the computer art at the time Applicant made the invention to adapt Munguia's teaching to Gehman because Munguia teaches one to reduce the bus latency by enhancing the access granting process.

8. Claims 26 and 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gehman in view of Munguia, and in further view of Nunziata et al. (U.S. Patent No. 5,572,686).

Referring to claim 26: Gehman and Munguia's disclosures are stated above, the system clock in either Gehman or Munguia is the real-time signal, but neither of them explicitly discloses a wait state and a time-out period.

Nunziata discloses that the priority will change as certain time elapses (column 2, lines 36-46). The elapsed time is the time-out period, and the state during the time-out period is the wait state.

Hence, it would have been obvious to one having ordinary skill in the computer art at the time Applicant made the invention to adapt Nunziata's teaching to Gehman and Munguia because Nunziata teaches one to handle the aged interrupts and to prevent any low priority interrupts from not been able to access the resources by a timer and dynamic priority setting.

Referring to claim 28: Nunziata discloses that the priority will increase as certain time elapses (column 2, lines 36-46). Thus, it discloses the high priority interrupt is asserted.

Referring to claims 29 and 30: Munguia discloses the history of granting (column 4, lines 9-25), which is the updating a table of request slot owners. Gehman discloses incrementally increasing remaining round robin devices (figure 2, step 222), which is updating the round robin priority list.

9. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gehman in view of Munguia, and in further view of Nunziata and Chiu et al. (U.S. Patent No. 6,401,154).

Referring to claim 27: Gehman, Munguia, and Nunziata do not explicitly disclose a programmable time-out period. Chiu discloses that it is known to employ a programmable timer to support different counter modes (column 4, lines 32-36). Hence, it would have been obvious to one having ordinary skill in the computer art at the time Applicant made the invention to adapt Chiu's teaching to Nunziata, Gehman, and Munguia because Chiu teaches one to support numerous counter modes by employing a programmable timer.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Justin I. King whose telephone number is 703-305-4571. The examiner can normally be reached on Monday through Friday, 9:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Rinehart can be reached on 703-308-3110. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Justin King
June 25, 2004

XUAN M. THAI
PRIMARY EXAMINER
TC2100